Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1. (currently amended): A method for preventing damage to an anti-reflective structure during removing an overlying photoresist layer, comprising the steps of:

forming a nitrogen-free silicon oxide layer having a refractive index of 1.4~1.7 and an extinction coefficient of 0~0.5 overlying the anti-reflective structure to serve as a protective layer;

forming a patterned photoresist layer overlying the nitrogen-free silicon oxide layer; and

removing the patterned ~~first~~ photoresist layer.

2. (currently amended): The method as claimed in claim 1, wherein the anti-reflective ~~layer~~ structure contains no nitrogen.

3. (original): The method as claimed in claim 1, wherein the anti-reflective structure consists at least one silicon oxynitride layer.

4. (original): The method as claimed in claim 1, wherein the nitrogen-free silicon oxide layer is formed by plasma enhanced chemical vapor deposition.

5. (original): The method as claimed in claim 4, wherein the nitrogen-free silicon oxide layer is formed from SiH_4 and CO_2.

6. (original): The method as claimed in claim 4, wherein the third insulating spacer is removed by buffer oxide etch solution (BOE).

7. (cancelled)

8. (currently amended): The method as claimed in claim [[7]]1, wherein the nitrogen-free silicon oxide layer is a silicon dioxide layer.

9. (currently amended): The method as claimed in claim [[7]]1, wherein the nitrogen-free silicon oxide layer is a silicon oxycarbide layer.

10. (currently amended): A method for preventing damage to an anti-reflective structure during removing an overlying photoresist layer, comprising the steps of:

in-situ formation of a nitrogen-free silicon oxide layer having a refractive index of 1.4~1.7 and an extinction coefficient of 0~0.5 overlying a nitrogen-free dielectric anti-reflective structure to serve as a protective layer;

forming a patterned photoresist layer overlying the nitrogen-free silicon oxide layer; and

removing the ~~first~~ patterned photoresist layer.

11. (original): The method as claimed in claim 10, wherein the nitrogen-free silicon oxide layer is in-situ formed by plasma enhanced chemical vapor deposition.

12. (original): The method as claimed in claim 11, wherein the nitrogen-free silicon oxide layer is formed from SiH_4 and CO_2.

13. (original): The method as claimed in claim 10, wherein the nitrogen-free silicon oxide layer has a thickness of about 10~500 Å.

14. (original): The method as claimed in claim 10, wherein the nitrogen-free silicon oxide layer is a silicon dioxide layer.

15. (original): The method as claimed in claim 10, wherein the nitrogen-free silicon oxide layer is a silicon oxycarbide layer.

16. (currently amended): A semiconductor device for preventing damage to an anti-reflective structure during removing an overlying photoresist layer, comprising:

a nitrogen-free dielectric anti-reflective structure disposed overlying a substrate; and

a nitrogen-free silicon oxide layer having a refractive index of 1.4~1.7 and an extinction coefficient of 0~0.5 disposed overlying the nitrogen-free anti-reflective layer to serve as a protective layer.

17. (cancelled):

18. (currently amended): The semiconductor device as claimed in claim [[17]]16, wherein the nitrogen-free silicon oxide layer is a silicon dioxide layer.

19. (currently amended): The semiconductor device as claimed in claim [[17]]16, wherein the nitrogen-free silicon oxide layer is a silicon oxycarbide layer.

20. (original): The semiconductor device as claimed in claim 16, wherein the nitrogen-free silicon oxide layer has a thickness of about 10~500 Å.